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ABSTRACT

The Career Pattern Study hypothesized the concept of vocational maturity, attempted to define the concept, developed questionnaire methods for studying it, and refined the questionnaire items into an instrument to measure it. In this brief biography of the Career Development Inventory (CDI), the next step was to refine the Career Pattern Study scales of Vocational Maturity into an instrument useful for measuring the outcome of high school students being exposed to a computerized guidance program. The current form of the CDI yields scores for three scales designed to measure three important aspects of vocational maturity as well as a total score. Scale A, Planning Orientation, includes items dealing with: Concern with Choice, Specificity of Planning, and Self-estimated Amount of Occupational Information. Scale B, Resources for Exploration, involves a self-rated assessment of resources for use in planning. Scale C, Information and Decision Making, assesses the students' possession of actual occupational information and his knowledge of how to integrate personal and occupational information into educational and vocational decisions. The CDI is an objective inventory attempting to measure the vocational maturity of adolescent boys and girls. Its current status is that is it now ready for use in further trial and research. (Author/CK)

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VOCATIONAL DEVELOPMENT THEORY AND THE CAREER DEVELOPMENT INVENTORY:

Construction of the CDI

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Super has summarized twenty years of research and theory about the process of career development and one of its basic concepts, namely, Vocational Maturity.

As is common in psychology, attempts to do research in a new field creates the need for gathering new types of data and this leads to the development of new instruments to gather such data. Then as the instruments are further used, they become revised and refined until they become important for themselves and take on a life of thier own, finding uses in situations other than the original research.

The Career Development Inventory (CDI) is an example of this. The Career Pattern Study hypothesized the concept of vocational maturity, attempted to define the concept, developed questionnaire methods for studying it, and refined the questionnaire items into an instrument to measure it. (Super and Overstreet, 1960). Originally designed to be descriptive of a developmental process, Vocational Maturity as a measured construct then found usefulness as an outcome variable, i.e., as a measure of the effectiveness of some experimental treatment.

In this brief biography of the CDI, the next step was to refine the Career Pattern Study scales of Vocational Maturity into an instrument useful for measuring the outcome of high school students being exposed to a computerized guidance program, entitled the Educational and Career Exploration System (Minor, Myers, and Super, 1969), originally developed as a project of the Advanced Systems Development division of IBM

(under the direction of Dr. Frank J. Minor) with the consultant and contract help of Professors Donald E. Super and Roger A. Myers of Teachers College. In the field trial and assessment of this system, first at Montclair, New Jersey High School (Thompson, Lindeman, Forrest, Super, 1971) and later at Genessee County, Michigan (Myers, Lindeman, Forrest, Super, 1971) an instrument designed to measure vocational maturity went through several versions, and has become, as of 1972, the Career Development Inventory.

The current form of the CDI yields scores for three scales designed to measure three important aspects of vocational maturity as well as a total score.

Scale A, Planning Orientation, includes items dealing with: Concern with Choice, Specificity of Planning, and Self-estimated Amount of Occupational Information. Scale B, Resources for Exploration, involves a self-rated assessment of resources for use in planning. It is a measure of the quality of the actually used and potentially useful resources for career exploration. Scale C, Information and Decision Making assesses the students' possession of actual occupational information and his knowledge of how to integrate personal and occupational information into educational and vocational decisions. Scale A represents the degree of the student's awareness of and inclination toward planning and choice, Scale B attempts to assess the quality of soundness or quality of individually used and potentially available resources, and Scale C samples the amount of the educational and occupational information the student has acquired together with his mastery of his use of the information for sound decisions. Thus, both attitudinal and cognitive aspects of vocational development are tapped by the inventory.

The first thing I like to know about a new instrument is how the test content was derived. It might be of interest, therefore, to trace briefly how the CDI happens to end up with these three scales.

If we go back to the early attempts to measure vocational maturity in the Career Pattern Study we find that items in the extensive questionnaire and interview were scored to yield twenty indices grouped under six major dimensions, as follows:

I. Orientation to Vocational Choice. This dimension included two indices, one dealing with the individual's concern with the choice process and the other with the use of resources in vocational choices.

II. Information and Planning, which included indices concerned with the specificity of information obtained and the specificity and extent of the individual's planning activity.

III. Consistency of Vocational Preferences, including indices measuring consistency within fields, within levels, and within families of occupations.

IV. Crystallization of Traits, including extent to which the individual's interests were patterned, interest maturity, liking for work, patterning of work values, concern with rewards for work, and acceptance of responsibility.

V. Vocational Independence, which measured the individual's independence in obtaining and holding down a job.

VI. Wisdom of Vocational Preferences, as measured by agreement between ability and preference, between interest and preference, between levels of interest and vocational preference, as well as the socio-economic accessibility of the individual's stated preference.

Notice that some of these indices were derived from reports of the

self-ratings by the individual but others required a comparison with other data, such as tests and ratings of occupational requirements. The indices were, therefore, rather difficult to derive.

Research with these indices during the early stages of the Career Pattern Study revealed that, at the ninth grade level, five indices turned out to have particular value, namely, 1) concern with choice, 2) acceptance of responsibility for choices and planning, 3) specificity of information about the preferred occupation, 4) specificity and extent of planning, and 5) use of resources in orientation. The other indices were found to be of little value at the ninth grade level or were difficult to obtain.

When the first field trial of the ECES project was undertaken, a student questionnaire was administered as a pre-and post-test. In this Student Questionnaire were 87 items designed to measure Vocational Maturity. From these 87 items, six Vocational Development Scales were derived, as follows:

1. Vocational and Educational Planning Maturity.
2. Knowledge of Decision Making Principles.
3. Amount of Decision Making Information (Job Information).
4. Amount of Decision Making Information (Utility of Sources).
5. Quality of Decision Making Information.
6. Responsibility for Decision Making.

A factor analysis revealed that these six scales were of sufficient independence to warrant separate scoring.

When the large-scale evaluation of ECES began in Genessee County, Michigan, in 1970-71 there was need for a more efficient, more easily administered and scored instrument. This need led to the development of a questionnaire entitled Career Questionnaire, which included 216

items covering thirteen vocational maturity scales. These scales covered the following:

1) Acceptance of responsibility
2) Concern with choice
3) Work experience
4) Measured occupational information
5) Self-estimated amount of occupational information
6) Knowledge of decision-making principles
7) Planning, daydreaming and fantasy
8) Implications for vocational preferences of high school activities
9) Definiteness of plans
10) Quality of potential resources
11) Quality of used resources
12) Specificity of planning
13) Agreement of self-rated traits and preferred occupational ratings

David Forrest's doctoral dissertation (Forrest, 1971) includes a detailed analysis of the development and validation of this instrument, including item analysis, factor analysis, and correlation with other measures to establish construct validity. This analysis was based originally on 100 male and 100 female sophomore students. The factor analysis led to the reduction and rearrangement of the thirteen scales into three basic scales based on ninety-three items. This version represents the instrument now called the Career Development Inventory, and the one being used in the further evaluation of ECES at Genessee County in 1971-72.

The Career Development Inventory in its present form is an objective, multi-factor, self-administering, paper and pencil inventory attempting to measure the vocational maturity of adolescent boys and girls. It yields

three scale scores, two of them attitudinal and one of them cognitive, plus a total score. The scales are: A) Planning Orientation (attitudinal); B) Resources for Exploration (attitudinal); C) Information and Decision-making (cognitive). The scales contain thirty-three, twenty-eight, and thirty items, respectively. The questions are appropriate for both boys and girls. The reading difficulty of the CDI makes its use appropriate at and above the sixth grade and its vocabulary and content make it acceptable to junior or senior high school students. Administration is relatively easy and is self-explanatory. The instrument takes about thirty to forty minutes to fill out. However, the scoring is difficult and the results less reliable when all the items are not completed.

In addition to identifying information, the individual is asked to write down the names of one or more occupations which the individual has seriously considered for the future and which of these is his first choice. Then the individual is asked to respond to the following questions:

1. A self-rating on how much thought and planning has been given to things like finding out about educational possibilities, taking part in school activities which will help him on the job, getting money for college or training, taking school courses which would help on the job or in college, etc.
2. A rating of oneself in comparison to one's peers as to the time and thought given to making career-relevant choices.
3. A rating of how much the individual knows about the preferred occupation on such aspects as requirements, working conditions, methods of entering, chances for getting ahead, etc.

4. An indication as to whether or not the individual would go to various sources of information for help in making job plans, sources such as parents, friends, coaches, teachers, counselors, college catalogs, etc.
5. A rating of the same sources as to how much useful information the individual has already obtained from these sources.
6. A number of questions to find out how much the person actually knows about the world of work, such as the level of training and responsibility of certain occupations, which occupational fields are expected to grow most rapidly during the next ten years, the educational requirements for occupations, the matching of tools and equipment with a list of occupations, etc.
7. Some case history problems to determine whether the individual knows what needs to be known in order to make appropriate decisions. For example, after being given certain information about an individual's interests and school records, the testee is asked which of a number of occupations the person should consider as a possible future occupation.

As mentioned above, these ninety-three items can then be scored to obtain three vocational maturity scales as well as a total score designed to measure career development in general.

At present there are percentile norms derived from 200 male tenth graders and 200 female tenth graders. The differences between the two sexes are relatively slight.

The test-retest reliability coefficients based on a sample of 82 male and female tenth graders, with an interval of from two to four weeks between testings were .85 for scale A, .82 for scale B, .71

for scale C and .87 for total score. Test-retest correlations over an interval of six months and based on approximately 1000 tenth grade boys and girls were .71 for scale A, .64 for scale B and .68 for scale C, and .71 for total score. These results indicate that vocational maturity, as measured by the CDI, is a rather stable characteristic over a six month period, at least at the tenth grade level of development. Data are also available on school grade. There is a consistent increase in mean score on the three scales and total score when samples of eighth grade, tenth grade and twelfth grade students are compared.

David Forrest and I have somewhat arbitrarily divided up the responsibility for the description of the instrument. I have dealt with the early history of the instrument and how it has been refined through various versions designed to purify the scales and make the instrument usable. Dave Forrest will continue with primary attention to the kinds of data which establish its construct validity as well as its relation to other instruments and other variables.

In conclusion, the current status of the Career Development Inventory is that it is now ready and available for use in further trial and research. Information about the inventory, its administration and scoring, its construction and validation, and possible uses are given in a Preliminary Manual (Super and Forrest, 1972) obtainable from Professor Super upon request.

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